



Brunsing Associates, Inc.

December 12, 2005

Project No. 617

Ms. Peggy Carr
Sonoma County Department of Health Services
Environmental Health Division
475 Aviation Boulevard, Suite 220
Santa Rosa, California 95403

**Groundwater Monitoring Report, August and November 2005
18155 Sonoma Highway
Boyes Hot Springs, California**

Dear Ms. Carr:

This report presents the results of the groundwater monitoring performed on August 4, 2005 and November 10, 2005 by Brunsing Associates, Inc. (BAI) at 18155 Sonoma Highway, Boyes Hot Springs, California (Plates 1 and 2). Groundwater sampling was performed in monitoring wells MW-2 and MW-4 and the samples were analyzed only for the compound 1,2-dichloroethane (1,2-DCA), as requested in the SCDHS-EHD letter dated November 3, 2003.

Site History

Standard Oil built and occupied a gasoline service station with underground fuel tanks in the center of the property in the mid-1940's. The site was used as a service station for an auto dealership/repair shop until its closure in 1965, according to a Van Houten Consultants, Inc. (Van Houten) report titled, "Discharge Evaluation for Removal of Buried Fuel Tanks," dated December 22, 1986. In the December 1986 report by Van Houten, the Site Plan indicates that the site initially contained six underground storage tanks: four fuel tanks (three 2,000-gallon tanks and one 5,500-gallon tank), a 500-gallon waste oil tank, and a concrete septic tank. The service station pump island was located on the west side of the site, adjacent to Sonoma Highway. According to Ms. Millie Gallo, a pump station was also present on the easterly side of the site, primarily for family use. In December 1986, Van Houten reported that the fuel tanks had not been in use for 20 years, and that the waste oil tank had not been used for six years.

The fuel tanks were emptied of liquid on May 21, 1986 by Fuel Oil Polishing Company-Bay Area of Sonoma, California, as stated in Van Houten's report titled "Quarterly Ground Water Sampling and Downgradient Hydrogeologic Investigation," dated April 30, 1993. Two soil borings were drilled on June 5, 1986 to the northeast and southwest of the fuel tanks; the soil samples were analyzed by Anatec Laboratories. The analytical results indicated that the soil

samples from boring 1 contained none of the analytes. The soil samples collected from boring 2 contained total petroleum hydrocarbons (TPH) as gasoline concentrations at 530 parts per million (ppm) at 7 feet and 14 ppm at 12 feet.

The tanks were removed from two excavations on October 27, 1986 by Hammond Construction of Sonoma, California. The tanks were hauled away from the site by H&H Ship Service of San Francisco, California. Samples collected from the volcanic bedrock below the gasoline tanks ranged in concentrations from 18 to 390 ppm of TPH as gasoline. Volcanic bedrock samples collected from below the waste oil tank were reported to contain 22 to 760 ppm of "total heavy hydrocarbons".

Composite samples from the excavated materials contained concentrations ranging from 440 to 890 ppm of TPH as gasoline. The excavated materials were stockpiled on site and were fenced and aerated for approximately 4 months. According to Van Houten's April 30, 1993 report, the material was returned to the excavation, upon approval by Mark Sullivan of the SCDHS-EHD, and additional clean fill was imported to bring the excavation up to grade on April 25, 1987.

Van Houten prepared an "Initial Hydrogeologic Investigation" report, dated April 15, 1991. The report provides a well survey for the area, a discussion of the drilling of borings 1 and 2, and the installation of groundwater monitoring wells MW-1 through MW-4. Well construction details are also summarized in Table 3.

Soil samples collected during the drilling of the borings and well boreholes were analyzed for TPH as gasoline, TPH as diesel, TPH as motor oil, non polar oil and grease, benzene, toluene, ethylbenzene, and xylenes (BTEX), chlorinated hydrocarbons, organic lead, and for five metals (nickel, cadmium, chromium, lead and zinc). The results of the soil analyses indicated that petroleum hydrocarbon contamination in soils existed at monitoring well MW-1 at six and eleven feet below ground surface (bgs), and in boring 1 at 5 feet bgs. No chlorinated hydrocarbons or metals greater than the total threshold limit concentrations were reported.

Quarterly groundwater monitoring and monthly groundwater elevation measurements were initiated at the site in March 1992; an initial groundwater monitoring round was also performed in March 1991 after the well installations. The results of the groundwater monitoring are provided in Van Houten's report titled, "Quarterly Groundwater Sampling and Downgradient Hydrogeologic Investigation." The groundwater analytical results reported between March 1991 and March 1993 indicate that the highest levels of petroleum hydrocarbons were occurring in monitoring well MW-1, with 400 parts per billion (ppb) of TPH as gasoline as the highest concentration.

In April 1993, approximately 700 cubic yards of contaminated soil were removed from the site. The area of the excavation was along the west side of the property, in the vicinity of monitoring well MW-1, which was abandoned. The depth of the soil excavation ranged from 20 feet at the northeast corner to 9.5 feet along the west wall to 5 feet at the south end of the excavation.



Details of the soil excavation are provided in Van Houten's report titled, "Soil Excavation," dated June 14, 1993.

One groundwater monitoring event was completed in September 1993, after removal of the excavated soil. The next groundwater monitoring event occurred in January 1999, with monitoring continuing to the present. In December 2001, BAI drilled four soil borings (BB-1 through BB-4). The results of the drilling activities are discussed in BAI's report titled, "Soil and Groundwater Investigation," dated July 17, 2002.

Exploratory borings BB-7 and BB-8, and boring BB-9 were drilled on October 14, 2004 and October 15, 2004. The results of the drilling are presented in BAI's "Further Site Investigation Report", dated December 27, 2004.

Summaries of the groundwater elevation and analytical results since BAI has been monitoring the site are included in Tables 1 and 2, respectively. The well construction details are summarized in Table 3.

Groundwater Monitoring

Wells MW-2 and MW-4 were purged and sampled, and depths to groundwater were measured on August 4, 2005 and November 10, 2005. Monitoring well MW-3 is no longer part of the required sampling program, and was not sampled. Monitoring well MW-3 was not accessible for water level measurements. BAI's groundwater sampling protocol and field reports are included in Appendix A. The groundwater samples were submitted to BACE Analytical and Field Services and analyzed for 1,2-DCA using EPA Test Method 8260. The analytical laboratory reports for the August and November 2005 groundwater samples are included in Appendix B.

Groundwater Monitoring Results

The depths to groundwater and historical groundwater elevations starting in 1999 are presented in Table 1. The groundwater flow direction and gradient during the August and November 2005 sampling events could not be calculated because of insufficient data. Since 1999, the groundwater flow direction has ranged from northwest to southwest.

In August and November 2005, the compound 1,2-DCA was reported in the groundwater samples collected from well MW-2 at concentrations of 1.32 and 1.74 micrograms per liter ($\mu\text{g/l}$), respectively. The compound 1,2-DCA was not reported in the MW-4 groundwater samples.



Ms. Peggy Carr
December 12, 2005
Page 4

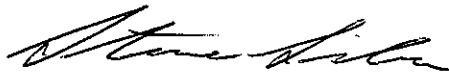
Discussion

The results of groundwater monitoring show that 1,2-DCA continues to be present in groundwater samples collected from well MW-2. The concentrations of 1,2-DCA from September 2002 through November 2005 have been generally stable, ranging from 1.32 to 1.81 µg/l, with the exception of the September 2003 data that reported 2.76 µg/l.

Since the November 2005 sampling event, no further action has been required by the SCDHS-EHD for the site. At this time, monitoring wells MW-2, MW-3, and MW-4 are scheduled to be abandoned on December 9, 2005.

If you have any questions regarding this report, please contact Diana Dickerson at (707) 838-3027.

Sincerely,



Steve Silva
Project Geologist



Diana M. Dickerson, P.G., R.E.A.
Principal Geologist



cc: Ms. Millie Gallo
Ms. Teri Gallo

Attachments

- | | |
|-------------|--|
| Table 1. | Groundwater Elevation Data |
| Table 2. | Groundwater Analytical Data For Wells |
| Table 3. | Well Construction Details |
| Plate 1. | Site Vicinity Map |
| Plate 2. | Site Map |
| Appendix A. | Monitoring Well Sampling Protocol and Field Logs |
| Appendix B. | Analytical Laboratory Reports |



TABLES



TABLE 1.
GROUNDWATER ELEVATION DATA
18155 Sonoma Highway
Boyes Hot Springs, California

Well Number	Date Measured	Top of Casing Elevation (Feet)	Depth to Groundwater (Feet below TOC)	Groundwater Elevation (Feet, MSL)	Groundwater Flow Direction and Gradient (ft/ft)
MW-2	1/8/1999	134.03	13.42	120.61	Northwest 0.028
MW-3	1/8/1999	141.09	19.19	121.90	
MW-4	1/8/1999	133.55	11.94	121.61	
MW-2	5/11/1999	134.03	10.79	123.24	Northwest 0.019
MW-3	5/11/1999	141.09	16.64	124.45	
MW-4	5/11/1999	133.55	9.75	123.80	
MW-2	1/16/2002	134.03	7.91	126.12	Southwest 0.055
MW-3	1/16/2002	141.09	12.82	128.27	
MW-4	1/16/2002	133.55	8.90	124.65	
MW-2	9/18/2002	134.03	25.64	108.39	--
MW-3	9/18/2002	141.09	dry	--	
MW-4	9/18/2002	133.55	22.40	111.15	
MW-2	12/12/2002	134.03	23.05	110.98	--
MW-3	12/12/2002	141.09	dry	--	
MW-4	12/12/2002	133.55	15.46	118.09	
MW-2	3/13/2003	134.03	10.42	123.61	Southwest 0.041
MW-3	3/13/2003	141.09	15.13	125.96	
MW-4	3/13/2003	133.55	10.91	122.64	
MW-2	6/13/2003	134.03	13.53	120.50	Northwest 0.024
MW-3	6/13/2003	141.09	20.13	120.96	
MW-4	6/13/2003	133.55	12.14	121.41	
MW-2	9/30/2003	134.03	24.74	109.29	--
MW-3	9/30/2003	141.09	dry	--	
MW-4	9/30/2003	133.55	21.78	111.77	
MW-2	3/5/2004	134.03	7.06	126.97	--
MW-3	3/5/2004	141.09	12.90	128.19	
MW-4 ⁽¹⁾	3/5/2004	133.55	8.56	124.99	
MW-2	8/23/2004	134.03	25.26	108.77	Northwest 0.129
MW-3 ⁽²⁾	8/23/2004	141.09	22.01	119.08	
MW-4	8/23/2004	133.55	22.32	111.23	



TABLE 1.
GROUNDWATER ELEVATION DATA
 18155 Sonoma Highway
 Boyes Hot Springs, California

Well Number	Date Measured	Top of Casing Elevation (Feet)	Depth to Groundwater (Feet below TOC)	Groundwater Elevation (Feet, MSL)	Groundwater Flow Direction and Gradient (ft/ft)
MW-2	3/9/2005	134.03	6.79	127.24	--
MW-3	3/9/2005	141.09	nm		
MW-4 ⁽¹⁾	3/9/2005	133.55	8.83	124.72	
MW-2	8/4/2005	134.03	15.65	118.38	--
MW-3	8/4/2005	141.09	nm		
MW-4	8/4/2005	133.55	16.41	117.14	
MW-2	11/10/2005	134.03	20.37	113.66	--
MW-3	11/10/2005	141.09	nm		
MW-4	11/10/2005	133.55	21.70	111.85	

Cumulative data since BAI has been monitoring the site.

TOC = Top of casing surveyed to mean sea level by FitzGerald & Associates, 3/13/91 and 4/12/93.

ft/ft = Foot per foot.

MSL = Mean sea level.

nm = Not measured, well inaccessible.

⁽¹⁾ Water in well may not have stabilized, therefore no groundwater flow direction or gradient was calculated.

⁽²⁾ Water in well may not have stabilized.



TABLE 2.
GROUNDWATER ANALYTICAL DATA FOR WELLS
 18155 Sonoma Highway
 Boyes Hot Springs, California

Well Number	Date Sampled	TPH as gasoline (mg/l)	TPH as diesel (mg/l)	BTEX ⁽¹⁾ (µg/l)	MTBE ⁽²⁾ EPA 8260 (µg/l)	1,2-DCA ⁽³⁾ EPA 8260 (µg/l)	Dissolved Zinc ⁽⁴⁾ (µg/l)
MW-2	1/8/1999	<0.05	<0.05	<0.5	<1.0	3.45	29.3
MW-2	5/11/1999	<0.05	<0.05	<0.5	<0.50	3.93	56.3
MW-2	1/16/2002	<0.05	nr	<0.50	<1.0	2.10	nr
MW-2	9/18/2002	<0.05	nr	<0.50	<1.0	1.74	nr
MW-2	12/12/2002	<0.05	nr	<0.50	<1.0	1.81	nr
MW-2	3/13/2003	<0.05	nr	<0.50	<1.0	1.59	nr
MW-2	6/13/2003	<0.05	nr	<0.50	<1.0	1.64	nr
MW-2	9/30/2003	<0.05	nr	<0.50	<1.0	2.76	nr
MW-2	3/5/2004	nr	nr	nr	nr	1.72	nr
MW-2	8/23/2004	nr	nr	nr	nr	1.76	nr
MW-2	3/9/2005	nr	nr	nr	nr	1.7	nr
MW-2	8/4/2005	nr	nr	nr	nr	1.32	nr
MW-2	11/10/2005	nr	nr	nr	nr	1.74	nr
MW-3	1/8/1999	<0.05	<0.05	<0.5	<1.0	<0.50	24.7
MW-3	5/11/1999	<0.05	<0.05	<0.5	<0.50	<0.50	67.7
MW-3	1/16/2002	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-3	3/13/2003	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-3	6/13/2003	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	1/8/1999	<0.05	<0.05	<0.5	2.27	<0.50	47.6
MW-4	5/11/1999	<0.05	<0.05	<0.5	<0.50	<0.50	38.0
MW-4	1/16/2002	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	9/18/2002	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	12/12/2002	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	3/13/2003	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	6/13/2003	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	9/30/2003	<0.05	nr	<0.50	<1.0	<0.50	nr
MW-4	3/5/2004	nr	nr	nr	nr	<0.50	nr
MW-4	3/9/2005	nr	nr	nr	nr	<0.50	nr
MW-4	8/4/2005	nr	nr	nr	nr	<0.50	nr
MW-4	11/10/2005	nr	nr	nr	nr	<0.50	nr

Cumulative data since BAI has been monitoring the site.

mg/l = Milligrams per liter.

µg/l = Micrograms per liter.

< = Not detected at specified laboratory reporting limit.

nr = Not requested.

⁽¹⁾ = Benzene, toluene, ethylbenzene, and xylenes.

⁽²⁾ = Methyl tertiary butyl ether.

⁽³⁾ = 1,2-dichloroethane. Other petroleum oxygenates and lead scavengers, through September 2003, analyzed using EPA Test Method 8260. Only those listed were detected.

⁽⁴⁾ = Dissolved cadmium, chromium, lead, and nickel were not detected when analyzed.



TABLE 3.
WELL CONSTRUCTION DETAILS
18155 Sonoma Highway
Boyce Hot Springs, California

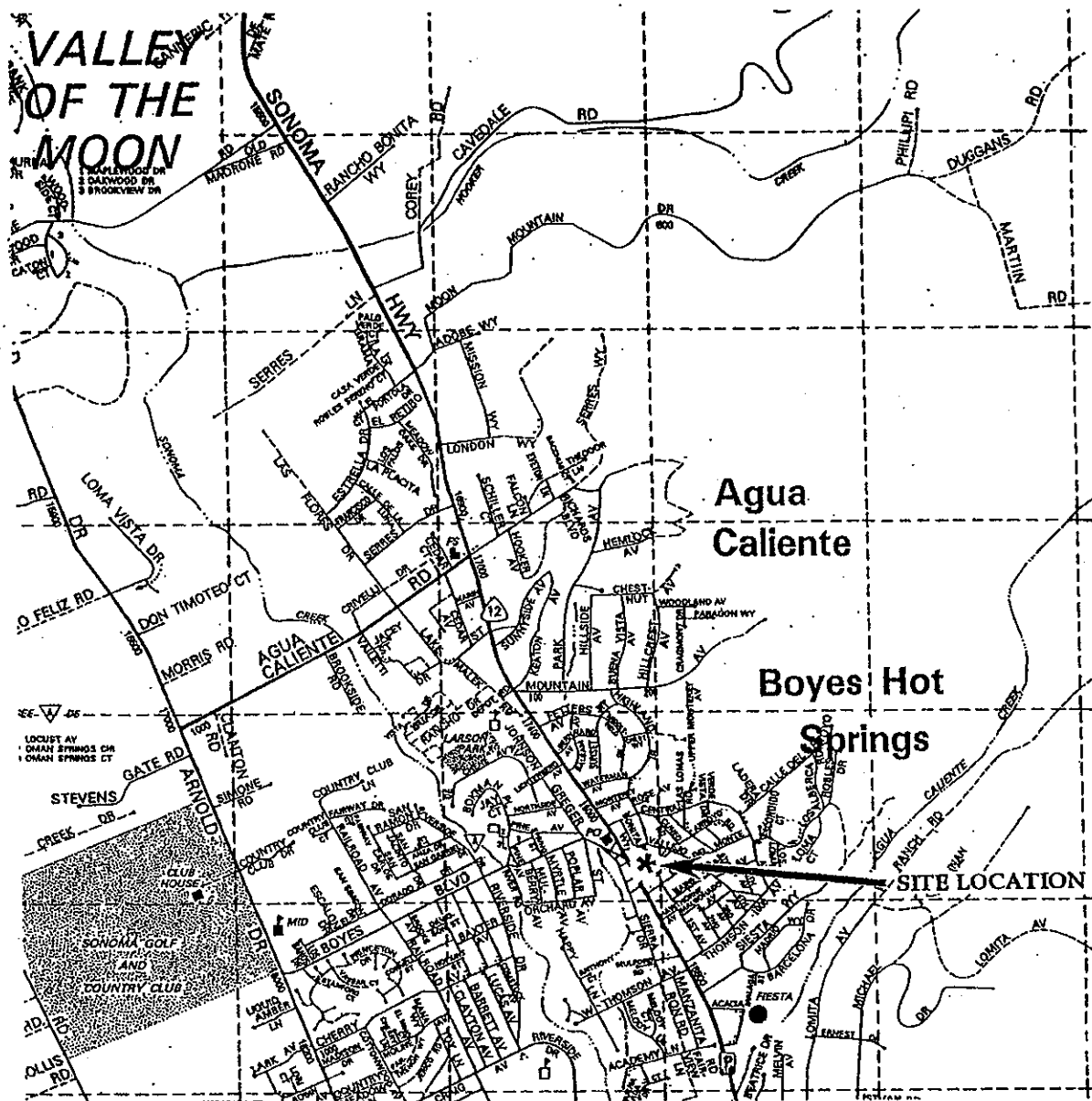
Well Number	Date Installed	Installed By	Borehole Diameter (inches)	Total Borehole Depth (feet)	Screened Interval (feet)	Total Well Depth (feet)	Casing Diameter (inches)	Screen Slot Size (inches)	PVC Casing Elevation (MSL)	Well Condition
MW-1	2/28/1991	Van Houten	8	33.5	18.5 to 33.5	33.5	2	0.020	--	abandoned
MW-2	2/28/1991	Van Houten	8	42	20 to 40	40	2	0.020	134.03	existing
MW-3	3/1/1991	Van Houten	8	22.5	12.5 to 22.5	22.5	2	0.020	141.09	existing
MW-4	10/19/1992	Van Houten	8	23	5 to 23	23	2	0.020	133.55	existing

MSL = Mean sea level

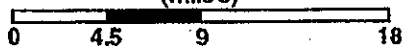


PLATES





APPROXIMATE SCALE
(miles)



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Association



Brunsing Associates, Inc.
5803 Skyline Blvd., Suite A
Windsor, California 95492
Tel: (707) 838-3027

Job No.: 617.003

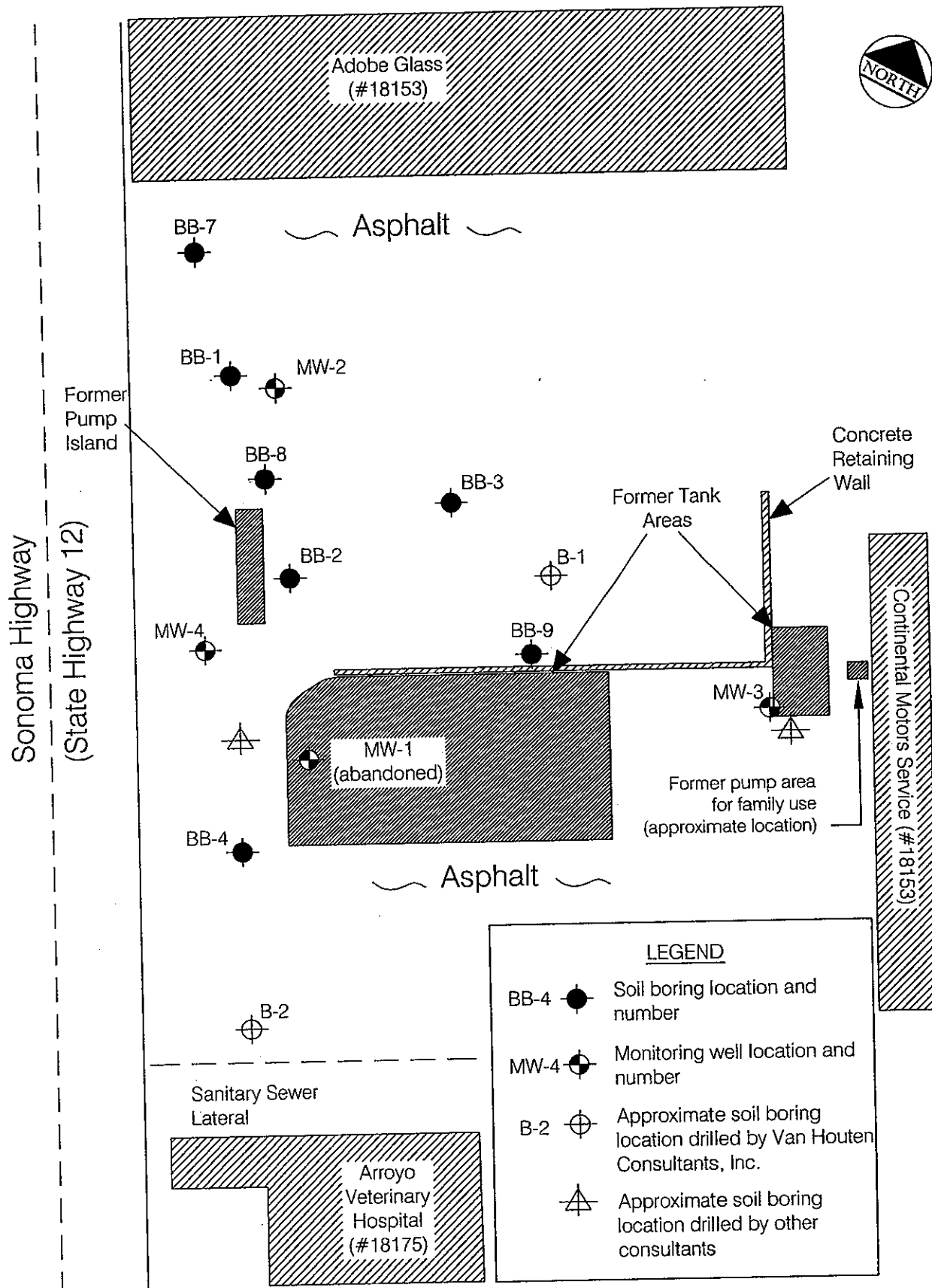
Appr.: *MET*

Date: 05/13/03

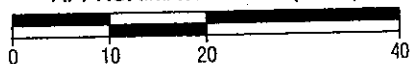
SITE VICINITY MAP
18155 Sonoma Highway
Boyes Hot Springs, California

PLATE

1



APPROXIMATE SCALE (FEET)



Reference: Van Houton Site Plan dated 4/30/93



Brunsing Associates, Inc.
5803 Skyline Blvd., Suite A
Windsor, California 95492
Tel: (707) 838-3027

Job No.: 617

Appr.: *AMO*

Date: 12/15/04

SITE MAP
18155 Sonoma Highway
Boyes Hot Springs, California

PLATE

2

APPENDIX A

Monitoring Well Sampling Protocol and Field Logs



Groundwater Sampling Protocol

Monitoring Wells

Prior to purging a monitoring well, groundwater levels are measured with a Solinst electric depth measurement device, or an interface probe, in all wells that are to be measured. At sites where petroleum hydrocarbons are possible contaminants, the well is checked for floating product using a clear bailer, a steel tape with water/oil paste, or an interface probe, during the initial sampling round. If floating product is measured during the initial sampling round or noted during subsequent sampling rounds, floating product measurements are continued.

After the water level and floating product measurements are complete, the monitoring well is purged until a minimum of three casing volumes of water are removed, water is relatively clear of sediment, and pH, conductivity, and temperature measurements of the water become relatively stable. If the well is purged dry, groundwater samples are collected after the water level in the well recovers to at least 80 percent of the original water column measured in the well prior to sampling, or following a maximum recovery period of two hours. The well is purged using a factory-sealed, disposable, polyethylene bailer, a four-inch diameter submersible Grundfos pump, a two-inch diameter ES-40 purge pump, or a peristaltic pump. The purge water is stored on-site in clean, 55-gallon drums.

A groundwater sample is collected from each monitoring well following re-equilibration of the well after purging. The groundwater sample is collected using a factory-sealed disposable, polyethylene bailer with a sampling port, or a factory-sealed Teflon bailer. A factory provided attachment designed for use with volatile organic compounds (VOCs) is attached to the polyethylene bailer sampling port when collecting samples to be analyzed for VOCs. The groundwater sample is transferred from the bailer into sample container(s) that are obtained directly from the analytical laboratory.

The sample container(s) is labeled with a self-adhesive tag. The following information is included on the tag:

- Project number
- Sample number
- Date and time sample is collected
- Initials of sample collector(s).



Individual log sheets are maintained throughout the sampling operations. The following information is recorded:

- Sample number
- Date and time well sampled and purged
- Sampling location
- Types of sampling equipment used
- Name of sampler(s)
- Volume of water purged.

Following collection of the groundwater sample, the sample is immediately stored on blue ice in an appropriate container. A chain-of-custody form is completed with the following information:

- Date the sample was collected
- Sample number and the number of containers
- Analyses required
- Remarks including preservatives added and any special conditions.

The original copy of the chain-of-custody form accompanies the sample containers to a California-certified laboratory. A copy is retained by BAI and placed in company files.

Sampling equipment including thermometers, pH electrodes, and conductivity probes are cleaned both before and after their use at the site. The following cleaning procedures are used:

- Wash with a potable water and detergent solution or other solutions deemed appropriate
- Rinse with potable water
- Double-rinse with organic-free or deionized water
- Package and seal equipment in plastic bags or other appropriate containers to prevent contact with solvents, dust, or other contaminants.

In addition, the pumps are cleaned by pumping a potable water and detergent solution and deionized water through the system. Cleaning solutions are contained on-site in clean 55-gallon drums.

Domestic and Irrigation Wells

Groundwater samples collected from domestic or irrigation wells are collected from the spigot that is the closest to the well. Prior to collecting the sample, the spigot is allowed to flow for at least 5 minutes to purge the well. The sample is then collected directly into laboratory-supplied containers, sealed, labeled, and stored on blue ice in an appropriate container, as described above. A chain-of-custody form is completed and submitted with the samples to the analytical laboratory.



FILE COPY

UST ☒ Yes
Fund Site: ☐ No

FIELD REPORT

PAGE 1 OF 4

JOB NO: 617.070 PROJECT: GALLO
INITIAL: CDS SUBJECT: 18155 SONOMA HWY., BOYES HOT SPRINGS, CA.
DATE: 8-4-05 PROJECT PHASE NUMBER: 04
VEHICLE USED: Ford F-150

Total Time: 7.00
End. Mileage: 553
Beg. Mileage: 173494

TOTAL MILEAGE: 59

TIME	DESCRIPTION OF WORK AND CONVERSATION RECORD
0629	LOAD EQUIPMENT AND SUPPLIES.
0721	TO SITE.
0808	ARRIVE AT SITE, SET-UP FOR GROUNDWATER SAMPLING
	MEASURED TWO ROUNDS OF DISTANCE TO WATER AT WELLS MW-2 AND MW-4
	WELL MW-3 COULD NOT BE ACCESSED. IT IS LOCATED UNDER A CAR
	THAT COULD NOT BE MOVED.
	STORED PURGewater IN DRUM LOCATED AT THE SOUTHEAST CORNER
	OF THE PROPERTY.
	CLOSED WELLS AND MONUMENTS
	DECON SAMPLING EQUIPMENT.
	LOAD EQUIPMENT AND SUPPLIES.
	COMPLETED FIELD NOTES AND LOGGED SAMPLES ON CHAIN OF CUSTODY.
1129	LEAVE SITE.
1239	ARRIVE AT OFFICE. SUBMITTED SAMPLES FOR ANALYSIS
	UNLOAD EQUIPMENT AND SUPPLIES.
1323	FINISHED WITH WORK.
<p>DRUM COUNT:</p> <p>Water = 1 Develpmt Water =</p> <p>Soil = Decon Water =</p>	



WATER LEVELS

SHEET 2 OF 4

PROJECT: C9240

PROJECT NUMBER: 617.070

INSTRUMENT TYPE: ET(WLP)

INITIALS: CDS

DATE: 8-4-05

[illegible]

SHEET 3 OF 4

PROJECT NUMBER: 617.070

PRECIP. IN LAST 5 DAYS:

WIND *WIND*

DATE: 8-4-05

FINISHING TIME: 0932

INITIALS: CDS

GALLONS

2" WELL DEPTH: 40.00 - D.T.W. 15.65 = H2O COLUMN: 24.35 X 0.5 = 12.18

4" WELL DEPTH: - D.T.W. = H2O COLUMN: X 2.0 =

THEREFORE TOTAL PURGE GALLONS EQUALS

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
0849	1	6.50	407	21.0	CLOUDY BROWN, NO ODOR
0900	6	6.48	394	21.1	TURBID LIGHT BROWN, NO ODOR, SANDY
0915	12	6.38	398	21.2	TURBID LIGHT-BROWN, NO ODOR, SANDY

SAMPLE ANALYSIS:

1,2-DCA

SAMPLE TIME:

0925

DID WELL GO DRY?

NG

NOTES:

TIME

D.T.W.

0975

2.85

BRUNSG ASSOCIATES, INC. ENVIRONMENTAL DIVISION WELL SAMPLING

SHEET 4 OF 4

PROJECT: 6440

PROJECT NUMBER: 617.070

WELL # MW-4 PRECIP. IN LAST 5 DAYS: — WIND ✓

DATE: 8-4-05

STARTING TIME: 0933 FINISHING TIME: 1017

INITIALS: _____

CALCULATION OF PURGE VOLUME

2" WELL DEPTH: 23.00 - D.T.W. 16.41 = H2O COLUMN: 6.59 X 0.5 = 3.30

4" WELL DEPTH: - D.T.W. = H2O COLUMN: X 2.0 =

THEREFORE TOTAL PURGE GALLONS EQUALS 3

GALLONS

FIELD MEASUREMENTS

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
0955	1	7.15	344	20.4	CLEAR, NO ODOOR
0957	2	7.05	343	20.3	CLEAR, NO ODOOR
1000	3	6.99	341	20.2	CLEAR, NO ODOOR

SAMPLING:

SAMPLE ANALYSIS: 1,2-CCA

SAMPLE TIME: 1010 DID WELL GO DRY? NO

WATER LEVELS:

NOTES:

TIME	D.T.W.	
1014	20.00	

64

UST ☒ Yes
 Fund Site: ☐ No

FIELD REPORT

PAGE 1 OF 4

 JOB NO: 617,070 PROJECT: GALLO
 INITIAL: CDS SUBJECT: 18155 SONOMA HWY., BATES HOT SPRINGS, CA.
 DATE: 11-10-05 PROJECT PHASE NUMBER: 04
 VEHICLE USED: FORD F-150

 Total Time: 6.50
 End. Mileage: 154
 Beg. Mileage: 176097

TOTAL MILEAGE: 57

TIME	DESCRIPTION OF WORK AND CONVERSATION RECORD
0642	LOAD EQUIPMENT AND SUPPLIES
0723	TO SITE.
0831	ARRIVE AT SITE, SET-UP FOR GROUNDWATER SAMPLING
	MEASURED TWO ROUNDS OF DISTANCE TO WATER AT WELLS
	MW-2 AND MW-4,
	WELL MW-3 COULD NOT BE ACCESSED, LOCATED UNDER A CAR THAT
	COULD NOT BE MOVED.
	PERFORMED SAMPLING AT WELLS MW-2 AND MW-4,
	STORED PURGEWATER IN DRUM LOCATED AT THE SOUTHEAST
	CORNER OF THE PROPERTY.
	CLOSED WELLS AND MONUMENTS,
	DECON SAMPLING EQUIPMENT
	LOAD EQUIPMENT AND SUPPLIES.
	COMPLETED FIELD NOTES AND LOGGED SAMPLES ON CHAIN OF CUSTODY.
1116	LEAVE SITE.
1236	ARRIVE AT OFFICE; SUBMITTED SAMPLES FOR ANALYSIS.
	UNLOAD EQUIPMENT AND SUPPLIES
1319	FINISHED WITH WORK.
DRUM COUNT: Water = 2 Develpmt Water = Soil = Decon Water =	



WATER LEVELS

SHEET 2 OF 4

PROJECT: ~~6-ALLO~~

PROJECT NUMBER: 617

INSTRUMENT TYPE: ET (w/o)

INITIALS: LDE

DATE: 11-10-05

[illegible]

SHEET 3 OF 4

PROJECT NUMBER: 617

DATE: 11-10-05

INITIALS: C D S

G
A
L
L
O
N
S

10

<u>TIME</u>	<u>GALLONS REMOVED</u>	<u>pH</u>	<u>CONDUCTIVITY</u>	<u>TEMP.</u>	<u>OBSERVATIONS</u>
1004	1	6.73	358	22.1	TURBID BROWN, NO ODOR, SANDY
1013	5	6.84	340	21.3	TURBID LIGHT BROWN, NO ODOR, SANDY
1024	10	6.73	338	20.9	TURBID LIGHT BROWN, NO ODOR, SANDY

1,2-DCA					
---------	--	--	--	--	--

NG

[illegible]

SHEET 4 OF 4

PROJECT NUMBER: 617

DATE: 11-10-03

INITIALS: L D S

GALLONS

THEREFORE TOTAL PURGE GALLONS EQUALS

0.75

TIME	GALLONS REMOVED	pH	CONDUCTIVITY	TEMP.	OBSERVATIONS
0916	0.25	7.05	305	18.4	CLOUDY BROWN, NO ODOR, SANDY
0920	0.50	7.15	293	19.3	TURBID BROWN, NO ODOR, SANDY
0927	0.75	7.24	288	19.4	TURBID BROWN, NO ODOR, SANDY

SAMPLE ANALYSIS:	1, 2-DCA					
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SAMPLE TIME: 0933 DID WELL GO DRY? No

NOTES:

0937	22.45.	SLOW RECOVERY
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SLOW RECOVERY

APPENDIX B

Analytical Laboratory Reports



Laboratory Report Project Overview

EDF-12a

Laboratory:

Lab Report Number:

Project Name:

Work Order Number:

Control Sheet Number:

Bace Analytical, Windsor, CA

4617

18155 SONOMA HIGHWAY

617.070

NA

Report Summary

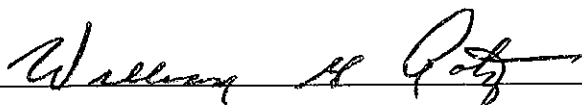
Labreport	Sampid	Labsampid	Mitr	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctf	Run Sub
4617	MW-2	4617-1	W	CS	8260FAB	SW5030B	08/04/200 5	08/07/200 5	08/07/200 5	20050807C	43
4617	MW-4	4617-2	W	CS	8260FAB	SW5030B	08/04/200 5	08/07/200 5	08/07/200 5	20050807C	44
		4612-1	W	NC	8260FAB	SW5030B	//	08/08/200 5	08/08/200 5	20050807C	33
		4617MB	W	LB1	8260FAB	SW5030B	//	08/08/200 5	08/08/200 5	20050807C	29
		4617MS	W	MS1	8260FAB	SW5030B	//	08/08/200 5	08/08/200 5	20050807C	41
		4617SD	W	SD1	8260FAB	SW5030B	//	08/08/200 5	08/08/200 5	20050807C	42

Lab Report No.: 4617 Date: 09/14/2005

Page: 1

Project Name:	18155 SONOMA	Analysis:	VOCs by GC/MS Fuel Additives Plus BTEX				
Project No:	617.070	Method:	8260FAB				
		Prep Meth:	SW5030B				
Field ID:	MW-2	Lab Samp ID:	4617-1				
Descr/Location:	MW-2	Rec'd Date:	08/04/2005				
Sample Date:	08/04/2005	Prep Date:	08/07/2005				
Sample Time:	0925	Analysis Date:	08/07/2005				
Matrix:	Water	QC Batch:	20050807C				
Basis:	Not Filtered	Notes:					
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil	
1,2-Dichloroethane	0.30	0.50 PQL		1.32	UG/L	1	
SURROGATE AND INTERNAL STANDARD RECOVERIES:							
4-Bromofluorobenzene		86-118 SLSA		95%		1	
Toluene-d8		88-110 SLSA		101%		1	
Dibromofluoromethane		86-115 SLSA		104%		1	

Approved by:



Date:

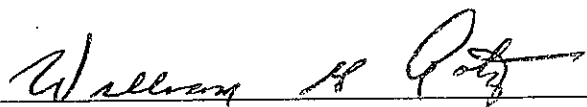
9/14/05

Lab Report No.: 4617 Date: 09/14/2005

Page: 2

Project Name: 18155 SONOMA	Analysis: VOCs by GC/MS Fuel Additives Plus BTEX					
Project No: 617.070	Method: 8260FAB					
	Prep Meth: SW5030B					
Field ID: MW-4	Lab Samp ID: 4617-2					
Descr/Location: MW-4	Rec'd Date: 08/04/2005					
Sample Date: 08/04/2005	Prep Date: 08/07/2005					
Sample Time: 1010	Analysis Date: 08/07/2005					
Matrix: Water	QC Batch: 20050807C					
Basis: Not Filtered	Notes:					
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
1,2-Dichloroethane	0.30	0.50 PQL		ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118 SLSA		95%		1
Toluene-d8		88-110 SLSA		101%		1
Dibromofluoromethane		86-115 SLSA		105%		1

Approved by:



Date:

9/14/05

QA/QC Report Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4617 Date: 09/14/2005

Page: 3

QC Batch: 20050807C		Analysis: VOCs by GC/MS Fuel Additives Plus BTEX				
Matrix: Water		Method: 8260FAB				
Lab Samp ID: 4617MB		Prep Meth: SW5030B				
Analysis Date: 08/08/2005		Prep Date: 08/08/2005				
Basis: Not Filtered		Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
1,2-Dichloroethane	0.30	0.50 PQL		ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118 SLSA		99%		1
Toluene-d8		88-110 SLSA		100%		1
Dibromofluoromethane		86-115 SLSA		100%		1

QA/QC Report

Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Page: 4

Lab Report No.: 4617 Date: 09/14/2005

QC Batch: 20050807C
Matrix: Water
Lab Samp ID: 4617MS
Basis: Not Filtered

Project Name: Lab Generated or Non COE Sample
Project No.: Lab Generated or Non COE Sample
Field ID: Lab Generated or Non COE Sample
Lab Ref ID: 4612-1

Analyte	Analysis Method	Spike Level		Sample Result	Spike Result		Units	% Recoveries		Acceptance Criteria	
		MS	DMS		MS	DMS		MS	DMS	% Rec	RPD
1,2-Dichloroethane	8260FAB	10.0	10.0	ND	11.0	10.4	UG/L	110	104	130-70	MSA 20MSP
4-Bromofluorobenzene	8260FAB	100.	100.	96.	94.	95.	PERCENT	94.0	95.0	118-86	SLSA 20SLSP
Dibromofluoromethane	8260FAB	100.	100.	104.	102.	104.	PERCENT	102	104	115-86	SLSA 20SLSP
Toluene-d8	8260FAB	100.	100.	99.	100.	100.	PERCENT	100	100	110-88	SLSA 20SLSP

Chain-of-Custody Form

[illegible]

Laboratory Report Project Overview

EDF 1.2a

Laboratory:

Lab Report Number:

Project Name:

Work Order Number:

Control Sheet Number:

Bace Analytical, Windsor, CA

4687

18155 SONOMA HIGHWAY

617.070

NA

Report Summary

Labreport	Sampleid	Labsampleid	Mtrx	QC	Animcode	Exmcode	Logdate	Extdate	Anadate	Lablotcti	Run Sub
4687	MW-2	4687-1	W	CS	8260FAB	SW5030B	11/10/200 5	11/15/200 5	11/15/200 5	20051115B	14
4687	MW-4	4687-2	W	CS	8260FAB	SW5030B	11/10/200 5	11/15/200 5	11/15/200 5	20051115B	17
		4686-1	W	NC	8260FAB	SW5030B	/ /	11/15/200 5	11/15/200 5	20051115B	10
		4687MB	W	LB1	8260FAB	SW5030B	/ /	11/15/200 5	11/15/200 5	20051115B	2
		4687MS	W	MS1	8260FAB	SW5030B	/ /	11/15/200 5	11/15/200 5	20051115B	12
		4687SD	W	SD1	8260FAB	SW5030B	/ /	11/15/200 5	11/15/200 5	20051115B	13

Lab Report No.: 4687 Date: 11/22/2005

Page: 1

Project Name: 18155 SONOMA	Analysis: VOCs by GC/MS Fuel Additives Plus BTEX
Project No: 617.070	Method: 8260FAB
	Prep Meth: SW5030B
Field ID: MW-2	Lab Samp ID: 4687-1
Descr/Location: MW-2	Rec'd Date: 11/10/2005
Sample Date: 11/10/2005	Prep Date: 11/15/2005
Sample Time: 1034	Analysis Date: 11/15/2005
Matrix: Water	QC Batch: 20051115B
Basis: Not Filtered	Notes:

Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
1,2-Dichloroethane	0.30	0.50	PQL	1.74	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118	SLSA	96%		1
Toluene-d8		88-110	SLSA	99%		1
Dibromofluoromethane		86-115	SLSA	94%		1

Approved by:



Date:

11/22/05

Lab Report No.: 4687 Date: 11/22/2005

Page: 2

Project Name: 18155 SONOMA		Analysis: VOCs by GC/MS Fuel Additives Plus BTEX				
Project No: 617.070		Method: 8260FAB				
		Prep Meth: SW5030B				
Field ID: MW-4		Lab Samp ID: 4687-2				
Descr/Location: MW-4		Rec'd Date: 11/10/2005				
Sample Date: 11/10/2005		Prep Date: 11/15/2005				
Sample Time: 0933		Analysis Date: 11/15/2005				
Matrix: Water		QC Batch: 20051115B				
Basis: Not Filtered		Notes:				
Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
1,2-Dichloroethane	0.30	0.50 PQL		ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118 SLSA		96%		1
Toluene-d8		88-110 SLSA		99%		1
Dibromofluoromethane		86-115 SLSA		94%		1

Approved by:



Date:

11/22/05

QA/QC Report Method Blank Summary

Bace Analytical, Windsor, CA

Lab Report No.: 4687 Date: 11/22/2005

Page: 3

QC Batch: 20051115B		Analysis: VOCs by GC/MS Fuel Additives Plus BTEX	
Matrix: Water		Method: 8260FAB	
Lab Samp ID: 4687MB		Prep Meth: SW5030B	
Analysis Date: 11/15/2005		Prep Date: 11/15/2005	
Basis: Not Filtered		Notes:	

Analyte	Det Limit	Rep Limit	Note	Result	Units	Pvc Dil
1,2-Dichloroethane	0.30	0.50 PQL		ND	UG/L	1
SURROGATE AND INTERNAL STANDARD RECOVERIES:						
4-Bromofluorobenzene		86-118 SLSA		97%		1
Toluene-d8		88-110 SLSA		100%		1
Dibromofluoromethane		86-115 SLSA		94%		1

QA/QC Report

Matrix Spike/Duplicate Matrix Spike Summary

Bace Analytical, Windsor, CA

Page: 4

Lab Report No.: 4687 Date: 11/22/2005

QC Batch: 20051115B
Matrix: Water
Lab Samp ID: 4687MS
Basis: Not Filtered

Project Name: Lab Generated or Non COE Sample
Project No.: Lab Generated or Non COE Sample
Field ID: Lab Generated or Non COE Sample
Lab Ref ID: 4686-1

Analyte	Analysis Method	Spike Level		Sample Result	Spike Result		Units	% Recoveries		Acceptance Criteria			
		MS	DMS		MS	DMS		MS	DMS	% Rec	MSA	20MSP	RPD
1,2-Dichloroethane	8260FAB	10.0	10.0	ND	8.88	8.74	UG/L	88.8	87.4	1.6	130-70	MSA	20MSP
4-Bromofluorobenzene	8260FAB	100.	100.	94.	94.	95.	PERCENT	94.0	95.0	1.1	118-86	SLSA	20SLSP
Dibromofluoromethane	8260FAB	100.	100.	94.	94.	95.	PERCENT	94.0	95.0	1.1	115-86	SLSA	20SLSP
Toluene-d8	8260FAB	100.	100.	99.	99.	99.	PERCENT	99.0	99.0	0.00	110-88	SLSA	20SLSP

[illegible]